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Overview of Selected EPA (Environmental Protection Agency) Regulations and Guidance Affecting POTW (Publicly Owned Treatment Works) Management

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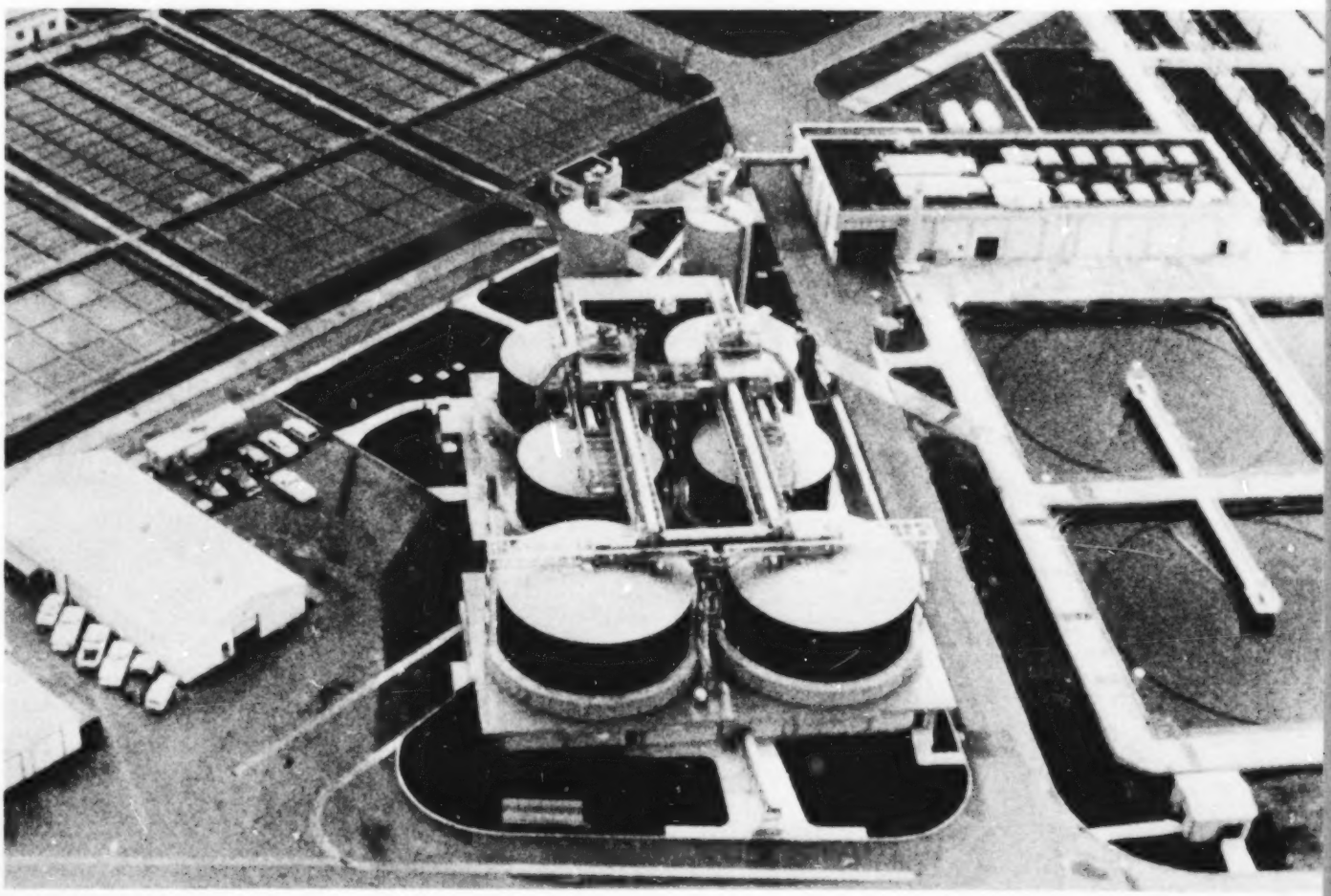

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Overview Of Selected EPA Regulations And Guidance Affecting POTW Management

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Water
Office of Municipal Pollution Control
Municipal Facilities Division
Washington, DC 20460

September, 1989

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The information in this document is meant only as a summary of some of the regulations and guidance that may apply to publicly owned treatment works (POTW) operations. This document does not provide a comprehensive overview of all applicable federal requirements. Use of this document should not replace reference to official regulations as published in the *Federal Register* or the *Code of Federal Regulations* or to other more specific guidance documents. Also, the reader should be aware that EPA continuously updates and revises its regulations in response to statutory amendments or to improve its regulatory program. Finally, POTWs are reminded that the Clean Water Act allows states and municipalities to impose more stringent requirements on National Pollutant Discharge Elimination System (NPDES) permittees than are required under federal law. Therefore, EPA suggests that the reader contact the appropriate authorities to get sources of detailed guidance for specific situations.

Introduction

Each day billions of gallons of domestic, commercial, and industrial wastewaters contaminated with a variety of pollutants flow through the sewers to more than 15,000 publicly owned treatment works (POTWs) serving the nation's cities and towns. These POTWs remove pollutants and discharge the treated water to rivers, bays, lakes, ground water, or the ocean. POTWs may then dispose of the residues (typically sludges) of the treatment processes (e.g., by incineration or landfilling), or use them in beneficial reuse/recycling activities, such as compost to condition soil. POTWs have been regulated for many years by several federal environmental statutes designed to control effluent discharges and sludge disposal practices.

As our knowledge about the health and environmental impacts of water pollution, hazardous waste, air pollution, and toxic chemicals has increased, Congress has revised these laws, frequently expanding their scope, and passed additional legislation to protect public health and the environment. EPA and the states now regulate POTWs under several environmental laws, including:

- **The Clean Water Act (CWA).** The CWA and its associated regulations are designed to ensure that our nation's water bodies are pure enough to support the goals of the Act. The goals of the CWA are to eliminate the discharge of pollutants into navigable waters and, in the meantime, to provide for protection and propagation of fish, shellfish, and wildlife and recreation. These goals may be achieved through installation of appropriate technology and management practices or efficient reuse and reclamation of wastewater. Under the CWA, states establish water quality standards that specify the uses for the water bodies, criteria for pollutants to protect those uses, and policies to protect water quality and prevent its degradation. POTWs must obtain National Pollutant Discharge Elimination System (NPDES) permits, which specify the permissible concentrations or levels of contaminants in their effluent. EPA and the states use the NPDES permitting system to implement secondary treatment requirements and any more stringent limitations necessary to attain water quality standards. In addition to pollution control levels required by federal regulations, states may require that POTWs meet additional, more stringent controls (which are then incorporated into the NPDES permits) in order to achieve the state's own water quality standards. Also under the CWA, POTWs with a total design flow exceeding 5 million gallons per day (mgd) (or less than 5 mgd where necessary to prevent interference and pass-through) must establish pretreatment programs. Under these programs, POTWs must regulate industries and other nondomestic sources discharging into municipal sewers. In addition, POTWs are subject to regulations developed under the CWA governing sludge use and disposal.
- **The Resource Conservation and Recovery Act (RCRA).** RCRA sets forth a comprehensive system for regulating both hazardous and nonhazardous solid wastes. Under RCRA, EPA has established regulations to define and control hazardous waste from the moment the waste is generated until its ultimate disposal. EPA regulations include requirements for generators, transporters, and facilities that treat, store, and/or dispose of hazardous waste. Under RCRA, POTWs first must determine if they are regulated (i.e,. if they receive or generate regulated waste), and if so, follow specific requirements for handling their waste. In addition to hazardous wastes, underground storage tanks and sludge disposal in municipal solid waste landfills are regulated under RCRA.

- **The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).** CERCLA or "Superfund" provides broad federal authority to respond directly to releases or threatened releases of hazardous substances. This law also provides for the cleanup of inactive or abandoned hazardous waste sites. Under CERCLA, EPA assesses the nature and extent of contamination at a site, determines the public health and environmental threats posed by a site, analyzes the potential cleanup alternatives, and takes action to clean up the site. POTWs that discharge CERCLA hazardous substances in effluent at levels that equal or exceed NPDES permit limitations, or for which no specific limitations exist, or in spills or other releases, may be subject to the notification requirements and liability provisions under CERCLA. In addition, POTWs that disposed of sludge in impoundments or landfills that are Superfund sites may be required to pay for cleanup of those sites. At times, POTWs may be requested to accept wastewaters from Superfund cleanup activities. If discharge of CERCLA wastewaters to a POTW is deemed appropriate, the discharger must ensure compliance with substantive and procedural requirements of the national pretreatment program and all local pretreatment regulations before discharging wastewater to the POTW.
- **The Superfund Amendments and Reauthorization Act (SARA).** This law, which amended CERCLA, also established in Title III a new program to increase the public's knowledge of and access to information on the presence of hazardous chemicals in their communities and releases of these chemicals into the environment. Title III requires facilities, including POTWs, to notify state and local officials if they have extremely hazardous substances present at their facilities in amounts exceeding certain "threshold planning quantities." If appropriate, the facility must also provide material safety data sheets (MSDSs) on hazardous chemicals stored at their facilities, or lists of chemicals for which these data sheets are maintained, and report annually on the inventory of these chemicals used at their facility. The law may also require certain POTWs to submit information each year on the amount of toxic chemicals released by the facilities to all media (air, water, and land), if they fall within Standard Industrial Classification Codes 20 to 39 and meet certain threshold limits.
- **The Clean Air Act (CAA).** Under this statute, EPA sets standards for the quality of ambient air and regulates sources of pollution that may affect air quality. The CAA requires states to set up programs (i.e., State Implementation Plans [SIPs]) to ensure that air quality standards are achieved and maintained. EPA has established National Ambient Air Quality Standards (NAAQS) for several classes of pollutants, as well as national emissions standards for both stationary and mobile sources of pollution. POTWs that incinerate sludge, or that operate boilers, sludge dryers, or other sources of air pollution, may be regulated by EPA programs for New Source Review, New Source Performance Standards (NSPS), and National Emissions Standards for Hazardous Air Pollutants (NESHAPs).
- **The Toxic Substances Control Act (TSCA).** TSCA regulates the manufacture, use, and disposal of toxic substances. TSCA authorizes EPA to control the risks from over 65,000 existing chemical substances, as well as the risks from the use of new chemicals. POTWs may be regulated under TSCA if they accept wastewaters contaminated with polychlorinated biphenyls (PCBs) or certain other toxic chemicals.

This booklet is designed to familiarize POTW owners and operators with the environmental laws and requirements that may apply to their operations. Figure 1 summarizes some of the potential sources that may be subject to the above statutes, at each stage of a POTW's operations.

- Chapter 2, **Influent Wastes,** discusses requirements for managing and treating wastes that enter the sewage treatment plant.
- Chapter 3, **Effluent Discharges,** describes applicable regulatory programs for controlling the discharge of effluents to the environment.
- Chapter 4, **Sewage Sludge Use and Disposal,** summarizes current and pending regulations for controlling sludge use and disposal practices.

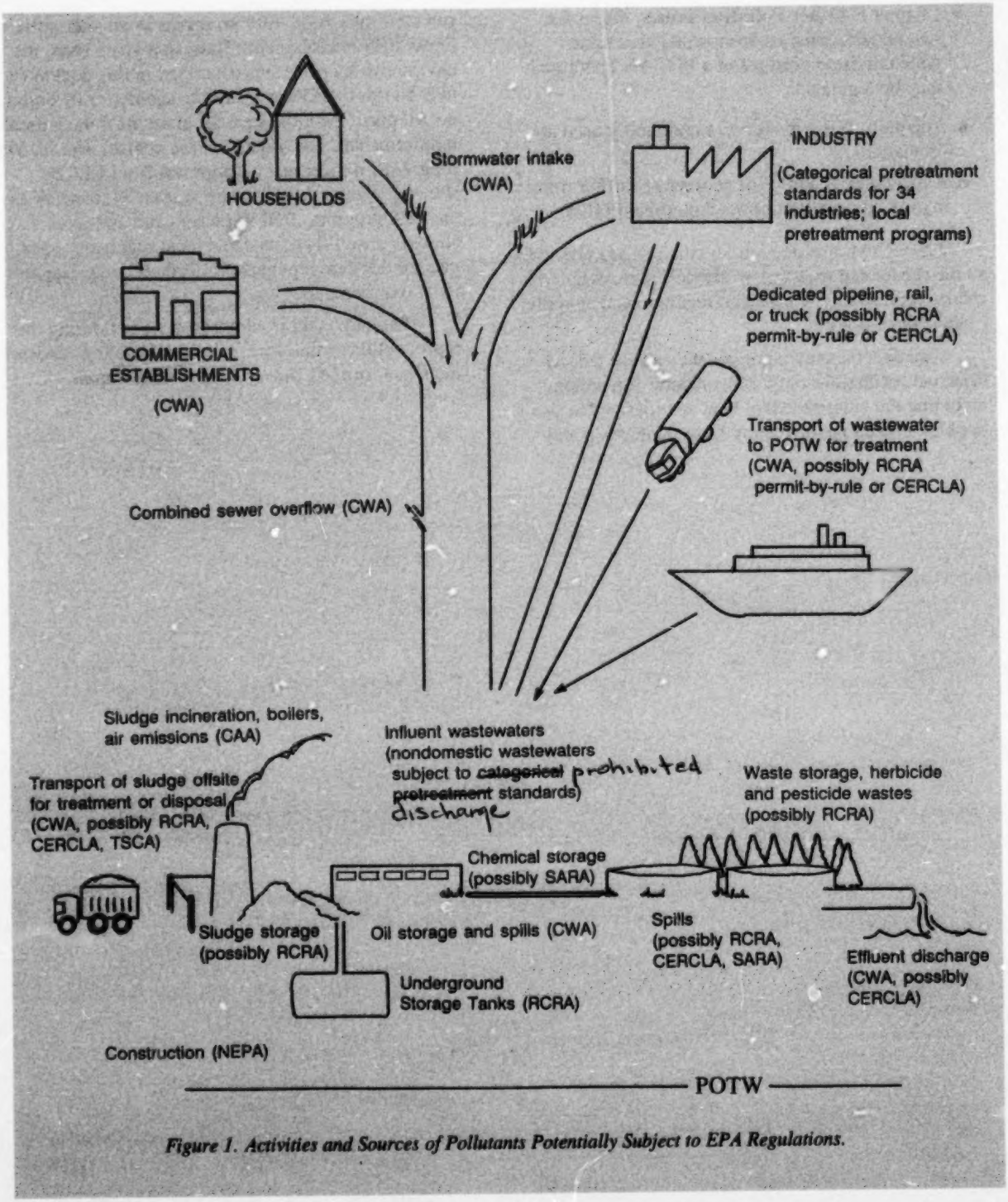
HOUSEHOLDS
Stormwater intake
(CWA)
INDUSTRY
(Categorical pretreatment standards for 34 industries; local pretreatment programs)
COMMERCIAL ESTABLISHMENTS
(CWA)
Dedicated pipeline, rail, or truck (possibly RCRA permit-by-rule or CERCLA)
Transport of wastewater to POTW for treatment (CWA, possibly RCRA permit-by-rule or CERCLA)
Combined sewer overflow (CWA)
Sludge incineration, boilers, air emissions (CAA)
Transport of sludge offsite for treatment or disposal (CWA, possibly RCRA, CERCLA, TSCA)
Influent wastewaters (nondomestic wastewaters subject to ~~categorical pretreatment~~ standards)
prohibited discharge
Waste storage, herbicide and pesticide wastes (possibly RCRA)
Chemical storage (possibly SARA)
Sludge storage (possibly RCRA)
Oil storage and spills (CWA)
Spills (possibly RCRA, CERCLA, SARA)
Effluent discharge (CWA, possibly CERCLA)
Underground Storage Tanks (RCRA)
Construction (NEPA)
POTW

Figure 1. Activities and Sources of Pollutants Potentially Subject to EPA Regulations.

- Chapter 5, **Other Pollution Issues,** discusses several additional environmental laws under which discrete portions of a POTW's operations may be regulated.
- Appendix A is a glossary of commonly used abbreviations.
- Appendices B and C list sources of further information on pollution issues that affect POTWs.

Throughout this document, citations are provided so the reader can seek out additional, more detailed information about the laws and regulations that apply to their operations.

This document summarizes the current federal laws and regulations only. Most federal legislation, including the environmental laws summarized in this booklet, encourage or require states to develop and run their own regulatory programs as an alternative to direct EPA management. Thus, in a given state, the environmental programs described in this document may be run by EPA or by a state agency, or by both (if not all portions of the state program meet the federal requirements). For a state to have control over its own programs, it must receive approval from EPA by showing that its programs are at least as stringent as the EPA program. POTW owners and operators should consult their state and local regulatory agencies for additional help and information on state and local requirements.

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Influent Wastes

Pollutants can be generated by a POTW or can reach a POTW through the sewer system, a dedicated pipe, a ship or barge, a truck, or rail bulk loads. Some of these pollutants may be toxic or hazardous. Potential sources of hazardous pollutants include industrial discharges (including illegal dumping of toxic wastes), septage, sewage containing household pesticides and cleaning wastes, wastes from hazardous waste site cleanups (for example, landfill leachate, contaminated runoff, or polluted ground water), surface runoff from agricultural land, stormwater, wastes from POTW machinery operations (for example, used oil and chlorine), and POTW groundskeeping chemicals (for example, pesticides and herbicides).

2.1 CWA Pretreatment Programs

Pretreatment programs are designed to eliminate the serious problems posed when toxic pollutants are discharged into sewage systems. The federal government's role in pretreatment began with the passage of the Clean Water Act (CWA) in 1972. The Act called for EPA to develop national pretreatment standards to control industrial discharges into sewage systems.

The overall framework for the National Pretreatment Program is contained in the General Pretreatment Regulations (40 CFR 403) that EPA published in 1978 and modified in subsequent rulemakings. These regulations apply to all 15,000 POTWs nationwide, and include three national pretreatment standards: prohibited discharge standards, categorical standards, and local limits. The regulations also require all POTWs designed to accommodate flows of more than 5 mgd and smaller POTWs with significant industrial discharges (about 1,500 POTWs) to establish local pretreatment programs to further increase compliance with national standards.

2.1.1 Local Pretreatment Programs

A local pretreatment program must have certain essential elements in order to be approved. The POTW must have adequate legal authority to implement its approved program. This legal authority is based on state law and local ordinances. State law authorizes the municipality to regulate industrial users of municipal sewage systems. The municipality, in turn, establishes a local ordinance that sets forth the components of its pretreatment program and identifies the director as the person empowered to implement the program.

The legal authority granted by state and/or local law must authorize the POTW to implement and enforce the requirements of the National Pretreatment Program, including national pretreatment standards, and to develop and enforce local limits. Some of the specific authorities that must be available to the POTW include:

- Authority to control through permit, order, or similar means the contribution to the POTW by each industrial user to ensure compliance with applicable pretreatment standards and requirements.
- Authority to require the submission of all notices and self-monitoring reports from industrial users necessary to assess and assure their compliance.
- Authority to inspect and monitor industrial facilities, and to take enforcement action against violators. Monitoring is necessary to ensure that industrial facilities comply with applicable pretreatment standards.

The POTW cannot rely solely on the information supplied by dischargers in self-monitoring reports. It must, therefore, conduct its own inspection and monitoring activities. Municipal personnel periodically should visit (either unannounced or scheduled) each industrial site to collect wastewater samples at designated sampling locations within the facility.

The authority to take enforcement action comes into play when an industrial plant violates pretreatment standards or requirements. The sewer authority with an approved program must have the authority to take immediate action to halt all discharges from a facility when the discharge could threaten human health or the environment, or interfere with the operation of the POTW. In less serious cases the POTW will immediately inform the violator of the violation and take necessary action, which may include additional monitoring of the facility's discharges. When standards, compliance deadlines, or other requirements are not met, civil and/or criminal proceedings may be initiated against the violator. In some cases, violations can be handled without litigation. However, the POTW may levy fines, seek injunctions, or take other strong enforcement actions to bring the violating facility into compliance.

2.2 National Pretreatment Standards

2.2.1 Prohibited Discharge Standards

The prohibited discharge standards forbid certain types of discharges by any nondomestic sewer system user, regardless of entry route. These standards apply to all nondomestic POTW users, regardless of whether they are covered by categorical pretreatment standards. The **general prohibitions** in 40 CFR Part 403 forbid any discharges into the sewerage system if they pass through the POTW untreated or if they interfere with POTW operations. The terms "pass through" and "interference" are defined in 40 CFR 403.3. The **specific prohibitions** in Part 403.5(b) outlaw the introduction into any POTW of:

- Pollutants that create a fire hazard or explosion hazard in the collection system or treatment plant.
- Pollutants that are corrosive, including any discharge with a pH lower than 5.0 (unless the POTW is specifically designed to handle such discharges).
- Solid or viscous pollutants in amounts that will obstruct the flow in the collection system and treatment plant, resulting in interference with operations.
- Any pollutant discharged in quantities sufficient to interfere with POTW operations.
- Discharges with temperatures hot enough to interfere with biological treatment processes at the POTW, or above 104 F (40 C), when they reach the treatment plant.

POTWs must enforce these general and specific prohibitions as a condition for approval of their pretreatment programs. EPA recently (November 23, 1988) proposed additional specific prohibitions for flammables and used oil (53 FR 47632).

2.2.2 Categorical Standards

Federal categorical pretreatment standards regulate the level of pollutants that certain industries can discharge to POTWs. Categorical pretreatment standards place restrictions on three classes of pollutants:

- ***Conventional pollutants,*** which include biochemical oxygen demand, total suspended solids, fecal coliform, oil and grease, and pH.
- ***Priority pollutants,*** which include one or more of the designated 126 priority pollutants.
- ***Nonconventional pollutants,*** which are not included in the above lists but that nevertheless present a threat to the environment or to human health.

Categorical pretreatment standards now exist for 34 industrial categories (40 CFR Parts 405-471). Within each industrial category, EPA may have established requirements for distinct industrial processes or "subcategories." For example, the "battery manufacturing" industrial category refers to establishments that manufacture all types of storage batteries. Within that category, EPA has established pollutant discharge limitations for six subcategories.

To set categorical pretreatment standards for an industry, EPA reviews environmental and engineering data to determine the types and quantities of effluents generated by that industry. EPA next identifies the best available technology economically achievable to control the industry's effluents. EPA then analyzes the performance of this technology to determine how much of each pollutant the technology can remove from the effluent and sets numerical pollution control limits based on the capabilities of available technology. EPA does not require industries to use specific treatment processes to comply with the standards. Rather, industries choose methods to meet the standards.

2.2.3 Local Limits

Local limits are local discharge limitations developed and enforced by POTWs to implement the general and specific prohibitions and to protect the POTW. Local limits are site-specific protections necessary to meet pretreatment objectives that are developed by the agencies in the best position to understand local concerns--namely the POTWs.

The POTW develops local limits in three steps. First, the POTW must identify sources and pollutants of concern. Second, the POTW must calculate the allowable headwork loadings. Finally, the POTW must allocate local limits to its industrial users.

POTW development and implementation of local limits is a critical link in ensuring that pretreatment standards are in place to protect the treatment works, the receiving stream, and sludge quality.

2.3 Slug Loadings

A slug loading is any discharge that could cause problems to the POTW, including any "interference" (as defined in 40 CFR 403.3) or violation of specific prohibitions under 40 CFR 403.5(b). Under 40 CFR 403.12(f), all categorical and noncategorical industrial users must immediately notify the POTW of slug loadings.

The Report to Congress on the Discharge of Hazardous Wastes to Publicly Owned Treatment Works (Domestic Sewage Study) documented the problem of slug loadings of toxic pollutants and hazardous constituents by industrial users. The Domestic Sewage Study recommended expansion of pretreatment controls on spills and batch discharges. The study acknowledged that categorical pretreatment standards, locally derived numerical limits, and reporting requirements were not always effective in handling accidental spills or irregular high strength batch discharges that the POTW may receive as slug loadings. (See 53 FR 47632).

Where industrial user slug loadings are not prevented and reach the plant, POTWs should assess the potential for interference or pass-through, notify EPA and state authorities pursuant to all appropriate reporting requirements (see Sections 3.1.6, 3.3.1, 4.4, and 5.2 for some of them), and take appropriate measures to minimize impacts to the treatment works and the environment. Such measures may include arranging for additional treatment of wastewaters or disposal of contaminated sludge in facilities specially designed and permitted to accept such material. Failure to take such measures may lead to NPDES permit violations, cause environmental problems that may require corrective action under RCRA at POTWs that have permit-by-rule status, or lead to liability under CERCLA for any hazardous substance releases (either on or off-site) generated by the POTW (see Section 2.5).

By supplementing existing and future pretreatment standards, slug control measures will help reduce influent loadings overall, including loadings of toxic pollutants and hazardous constituents. In addition, slug controls can be useful in ensuring that POTWs comply with NPDES effluent limitations on specific chemicals or whole-effluent toxicity.

2.4 RCRA Hazardous Waste Management

To determine if a POTW is regulated by EPA's RCRA hazardous waste management program, a POTW owner or operator must first determine if any waste generated, transported, treated, stored, or disposed of by the facility is hazardous. According to RCRA, hazardous waste is a subcategory of solid waste, and solid waste can be a solid, a semi-solid, a liquid, or a contained gas. This means that wastewaters, sludges, used oil, unused herbicides, and other wastes treated or generated by POTWs may be regulated under EPA's hazardous waste management program if such wastes meet the definition of a RCRA hazardous waste.

2.4.1 Wastes Covered Under RCRA Regulation

Wastes are regulated as hazardous under RCRA based on their characteristics ("characteristic wastes") or their designation in lists published by EPA ("listed wastes") (40 CFR Part 261). A waste is hazardous if it exhibits one or more of the following four characteristics:

- ***Ignitability.*** Ignitable wastes can create fires under certain conditions. Examples include liquids such as solvents that readily catch fire.
- ***Corrosivity.*** Corrosive wastes include those that are highly acidic or basic, having a pH less than or equal to 2 or greater than or equal to 12.5.
- ***Reactivity.*** Reactive wastes are those that are unstable under normal conditions, or can create explosions and/or toxic gases, fumes, and vapors when mixed with water.
- ***Toxicity.*** A waste is identified as exhibiting the EPA toxicity characteristic through use of the Extraction Procedure (EP) toxicity test. This test is designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into ground water. During the procedure, the waste is analyzed to determine if it possesses any of 14 toxic contaminants (certain metals and pesticides). If the concentration of any of the toxic constituents exceeds specified levels, the waste is classified as hazardous. EPA is planning to finalize a revised toxicity test in 1989. This Toxicity Characteristic test will analyze for metals and more organic constituents than the existing test. Because the test identifies more organic constituents than the EP toxicity test, more POTW sludges may be singled out as hazardous (EPA anticipates that only a few POTWs will generate a hazardous sludge).

A waste also may be regulated as hazardous if it appears on one of three EPA lists:

- ***Source-specific wastes.*** This list includes wastes from specific industries such as petroleum refining and wood preserving. Sludges and wastewaters from treatment and production processes in these industries are examples of source-specific wastes.
- ***Nonsource-specific (or generic) wastes.*** This list identifies wastes from common manufacturing and industrial processes, such as solvents used in degreasing operations in any industry.
- ***Commercial chemical products.*** This list includes specific discarded commercial chemical products, off-specification chemicals, container residues, and spill residues, such as creosote and some pesticides and herbicides that may be used at POTWs.

2.4.2 Wastes Exempt From RCRA Regulation

Hazardous waste mixed with domestic sewage and conditionally exempt small quantity generator wastes, among others, are excluded from most, if not all, RCRA hazardous waste management regulations. Any hazardous waste that has been mixed with domestic sanitary sewage in a sewer system that conveys the waste to a POTW for treatment is not regulated as hazardous waste under RCRA. For this reason, POTWs are not subject to RCRA requirements for hazardous waste discharged by other facilities to the sewers. This **domestic sewage exclusion**, however, does not extend to dedicated pipe wastes or to truck or rail shipments of hazardous wastes discharged into the sewer system or received by the treatment facility. This waste must be accompanied by a manifest and accepted by the POTW as a RCRA facility (See Sections 2.4.3 and 2.4.4).

POTWs that produce only small amounts of hazardous waste are subject to fewer and/or less stringent regulations than other generators. Hazardous waste generators that produce fewer than 220 pounds (or approximately half of a 55-gallon drum) of hazardous waste per month, or fewer than 2.2 pounds of acute hazardous waste (listed in 40 CFR 261.31, 261.32, 261.33[e]) per month, are called **conditionally exempt small quantity generators** and are excluded from nearly all of EPA's hazardous waste management requirements. Generators of between 220 and 2,200 pounds of hazardous waste per month, or fewer than 2.2 pounds of acute hazardous waste per month, are subject to fewer recordkeeping and reporting requirements, but must comply with RCRA regulations in 40 CFR 261.5 governing treatment, storage, disposal, and accumulation of wastes onsite.

2.4.3 Hazardous Waste Management

To ensure proper management of hazardous waste from the moment the waste is generated until its ultimate disposal, EPA has developed a tracking system to monitor and control hazardous waste. All hazardous waste generators, transporters, and facilities that treat, store, and/or dispose of hazardous waste must obtain an **EPA identification number.** The tracking system requires that a shipping document, called a **uniform hazardous waste manifest,** must accompany any hazardous waste sent to another location. All (except some rail and vessel transporters) who handle the waste must sign the manifest and keep one copy. When the waste reaches its final destination, the owner of that facility returns a signed copy of the manifest to the generator to confirm that the waste arrived.

Additional paperwork accompanies hazardous waste subject to land disposal restrictions. A notice from the waste generator must tell the POTW what treatment standard must be achieved prior to placing the waste on land (see Section 4.3) and provide the POTW with available chemical analysis of the waste.

In addition, all facilities treating, storing, and/or disposing of hazardous waste operate under a permit unless excluded. The permit system ensures that facilities meet the standards established under the RCRA program for proper waste management. Before a POTW owner or operator accepts a waste for treatment or disposal that has been determined to be hazardous, he or she must have an EPA identification number and a permit.

2.4.4 RCRA Permit-by-Rule

As described above, POTWs that accept hazardous wastes by truck, rail, vessel, or dedicated pipeline and manage such wastes in nonexempt units are regulated as RCRA treatment, storage, and disposal facilities (TSDFs) and must operate under a RCRA permit (40 CFR Part 270). Obtaining a permit to treat, store, or dispose of hazardous wastes can be a costly and time-consuming process. POTWs are exempt from this process and from many of the TSDF standards of 40 CFR Part 264 if they qualify for a permit-by-rule (40 CFR 270.60[c]). A POTW qualifies to operate under the RCRA permit-by-rule to manage hazardous waste if:

- The facility is in compliance with its NPDES permit.
- The facility has an EPA identification number.
- The facility complies with the manifest system requirements.
- The facility maintains the required records for the waste (including copies of manifests and reports on the quantities of hazardous waste handled).
- The facility has instituted a corrective action program, if necessary as specified in the NPDES permit, to remedy releases of hazardous constituents from the POTW.
- The waste meets all federal, state, and local pretreatment requirements that would be applicable to the waste if it were being discharged to the POTW via a sewer, pipe, or similar conveyance.

Other RCRA requirements may apply as well (minimum technology rquirements and land disposal restrictions, for example).

2.4.5 Emergency Permit

In cases where an imminent and substantial danger to human health or the environment is posed, a POTW can accept and treat, store, or dispose of hazardous waste without a permit-by-rule for 90 days or less if it obtains an emergency permit from EPA or the state (40 CFR 270.61). The emergency permit can be issued either orally or in written form. If issued orally, it must be followed within five days by a written emergency permit.

2.4.6 Storing Hazardous Waste

Different storage regulations apply depending on how much hazardous waste a POTW generates. POTWs that generate more than 2,200 pounds of hazardous waste a month can only store it for up to 90 days without obtaining a storage permit (40 CFR 262.34[a]). POTWs that generate between 220 and 2,200 pounds of hazardous waste a month can store up to 13,200 pounds for 180 days (or 270 days if the waste is to be shipped to a treatment, storage, or disposal facility that is located over 200 miles away) (40 CFR 262.34[d]). POTWs that generate less than 220 pounds a month can store up to 2,200 pounds for an unlimited period of time (40 CFR 261.5[g]). Unless they qualify for an exemption, permit-by-rule, or emergency permit, POTWs that accept and store hazardous waste from offsite must obtain a RCRA storage permit.

2.4.7 Wastewater Treatment Exclusion

A POTW with a NPDES permit is exempt from RCRA permitting if the hazardous waste is always kept in a wastewater treatment unit (40 CFR 264.1[g][6]). This **wastewater treatment unit exclusion** applies to tanks or tank systems that are part of an onsite wastewater treatment facility. In addition, sludges taken from wastewater treatment units that are hazardous waste are subject to RCRA hazardous waste management requirements for use and disposal (Section 4.3). Hazardous wastes stored or treated in surface impoundments or containers at POTWs are not exempt from RCRA regulation under the wastewater treatment exclusion, and such units would need a RCRA permit (presumably a permit-by-rule). The permit-by-rule requirements for POTWs do not apply to exempt wastewater treatment units.

To accept manifested shipments of hazardous waste for storage or treatment in a wastewater treatment unit, a POTW must have a RCRA facility identification number and be operating as a "designated" TSDF (including operating under a permit-by-rule) (See Section 2.4.4). However, a POTW which has only wastewater treatment units on site cannot be a "designated facility" since such a POTW does not need a RCRA permit.

2.4.8 Mixture Rule for Listed Wastes

Any waste mixture containing a "listed" hazardous waste is considered a hazardous waste, regardless of the percentage of the listed waste contained in the mixture (40 CFR 261.3[a][2][iv]). Consequently, if a POTW accepts a "listed" hazardous waste by truck, rail, vessel, or dedicated pipeline, the resulting wastewater mixture, as well as the sludge or incinerator ash and scrubber water produced as a consequence of treating this mixture, is deemed a hazardous waste under RCRA (40 CFR 261.3[c][2][i]). On the other hand, any waste mixture containing a "characteristic" hazardous waste is considered a hazardous waste only if the mixture itself exhibits the characteristic.

2.4.9 Unmanifested Wastes

Any hazardous wastes accepted for treatment or disposal by a POTW (other than those arriving via the collection system) should be accompanied by a uniform hazardous waste manifest. Some POTWs, however, may be sent hazardous wastes by truck, vessel, or rail that are not accompanied by a manifest. To prevent this from happening, a POTW may choose to occasionally test incoming shipments for RCRA hazardous waste characteristics or request documentation from the waste generator that the shipment is not deemed hazardous under RCRA. While not a requirement under RCRA, this precautionary measure may reduce or eliminate a POTW's potential hazardous waste liability by enabling the facility to refuse acceptance of the waste. A POTW also can evaluate industrial users' activities to ascertain whether those activities may be generating RCRA hazardous wastes that are then sent to the POTW.

2.5 CERCLA (Superfund)

Under the Superfund program, EPA responds to actual or threatened releases of hazardous substances, pollutants, and contaminants into any media (air, surface water, ground water, and soil). With few exceptions, Superfund coverage extends to all sources of releases and all means of entry of a substance into the environment. POTWs that accept Superfund hazardous substances (generated by cleanup activities at a site) or that experience a release of hazardous substances (for example, a spill) may be subject to CERCLA requirements, including reporting the release to appropriate authorities, cleaning up the release, and accepting financial responsibility for any response actions deemed necessary by EPA.

2.5.1 Hazardous Substances

Under Superfund, a "reportable" **hazardous substance** is any substance (excluding petroleum and natural gas) designated under certain sections of the Clean Air Act, the Clean Water Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act. EPA may designate additional substances as hazardous if they could present substantial danger to health and the environment. EPA maintains and updates the list of hazardous substances covered under Superfund (including the "reportable quantity" [RQ] associated with each hazardous substance) in 40 CFR 302.4. There are currently 725 substances on the list, which include, but are not limited to, the following compounds that the POTW may encounter:

- Any toxic pollutant listed under Section 307(a) of the Clean Water Act (i.e., the list of 126 priority pollutants).
- Any substance designated under Section 311(b)(2)(A) of the Clean Water Act.
- Any characteristic or listed RCRA hazardous wastes.
- Radionuclides.

Wastewaters generated or received by POTWs may contain one or more of these hazardous substances (see Section 5.2 for SARA extremely hazardous substances).

2.5.2 Wastewaters From CERCLA Cleanups

A POTW may be requested to accept wastewaters from a Superfund cleanup action. POTWs under consideration as a potential receptor of CERCLA wastewaters may include those POTWs with or without an EPA-approved pretreatment program. A POTW may refuse to accept CERCLA wastewaters, especially if, among other reasons, it is determined that acceptance would result in potential problems to a POTW (e.g., damages to a POTW's physical facilities or contamination of the POTW's sludge).

If discharge of CERCLA wastewaters to a POTW is deemed appropriate, the discharger must ensure compliance with substantive and procedural requirements of the national pretreatment program and all local pretreatment requirements before discharging wastewaters to a POTW. In addition, if the POTW accepts the waste, the POTW's NPDES permit and fact sheet may need to be modified to reflect the conditions of acceptance of the CERCLA wastewaters.

If CERCLA wastewaters are to be managed by a POTW, EPA recommends that the NPDES permit be modified to reflect the conditions of acceptance of these wastewaters. The permit modifications would incorporate specific pretreatment requirements, local limits, monitoring requirements, and/or limitations on additional pollutants of concern in the POTW's discharge, or other factors. Changes to the permit may reduce CERCLA reporting requirements and provide protection against possible CERCLA liabilities (see Sections 3.3.2 and 3.3.4).

Effluent Discharges

EPA's control of point sources of water pollution is implemented through the National Pollutant Discharge Elimination System (NPDES), which was established under the Clean Water Act (CWA). The NPDES program requires dischargers to obtain permits specifying the permissible concentration or level of contaminants in their effluent. EPA and the states use the NPDES permitting system to control point sources and thereby help attain and maintain ambient water quality standards for their surface water bodies. Every POTW must apply for and obtain an NPDES permit that includes limits which control the pollutants that may be discharged in its effluent.

EPA has established specific technology-based effluent limitations for sewage treatment plants. In general, POTWs must provide a minimum of secondary treatment. Secondary treatment is defined in part as treatment to achieve an effluent concentration of biochemical oxygen demand (BOD5) and total suspended solids (TSS) of 30 mg/L or less for each parameter. POTWs must also meet any more stringent limits necessary to protect water quality. In addition, effluent discharges from POTWs may be regulated in certain cases under CERCLA.

3.1 Effluent Discharges Under the CWA

3.1.1 Ambient Water Quality Standards

States are responsible for setting water quality standards for the waters within their borders. These standards designate the uses of specific water bodies and the associated numeric or narrative criteria applicable to these waters which are to be maintained via effluent limits set in permits. EPA reviews and approves the state standards, in accordance with EPA regulations specified in 40 CFR Part 131.

When setting standards, states must consider toxic pollutants listed pursuant to Section 307 of the CWA to determine whether:

- The discharge or presence of any pollutant on the list could interfere with the designated uses of the water body.
- EPA has published numeric criteria for those pollutants under Section 304(a) of the CWA.

If both of these conditions are met, the state must adopt specific numeric criteria for those pollutants; otherwise, adopt a procedure to derive a numeric limit from a narrative criterion to protect the designated uses of the water body. Depending on the state's evaluation of local conditions, its numeric pollutant criteria may be more or less stringent than EPA criteria. In cases where the state determines that a specific toxic pollutant could interfere with a water body's designated uses but EPA has not yet published numeric criteria, the state must adopt pollutant criteria based on biological monitoring or assessment methods.

3.1.2 Controlling Effluent Toxicity

Reducing effluent toxicity may be considerably more difficult than treating conventional pollutants. Not only are there hundreds of toxic chemicals that may be discharged to receiving waters, but analysis of these chemicals is sometimes difficult. In addition, it is difficult to predict the toxicity of chemical mixtures.

In response to these difficulties, EPA has placed considerable emphasis on a water quality-based approach to NPDES permitting, while also requiring that all applicable technology-based requirements be met. In its 1984 "Policy for the Development of Water-Quality Based Permit Limitations for Toxic Pollutants" (49 FR 9016), EPA recommended the use of biological testing of effluents in conjunction with other data to establish NPDES permit conditions.

In addition to meeting the technology-based requirements of secondary treatment, POTWs must meet any more stringent water quality-based limits imposed by the permitting authority. In some cases, local limits for industrial users of the POTWs may need to be developed to ensure attainment and maintenance of water quality-based limits established in POTW permits.

Effluent toxicity can be managed in some cases by chemical-specific effluent analysis and control (for example, removing residual chlorine in the effluent). Frequently, however, biological monitoring is needed to identify the interactive effects of toxic pollutants in the discharge. This is known as **whole effluent toxicity monitoring.** EPA and the states will develop NPDES permit limits based on whole effluent toxicity where it is an appropriate control parameter.

3.1.3 Toxicity Reduction Evaluations

In the event of toxicity permit limitation violations, POTWs may be required to conduct a **toxicity reduction evaluation (TRE).** A TRE is an investigation conducted within a plant or municipal system to isolate sources of effluent toxicity, identify the pollutants causing the toxicity, and determine the effectiveness of pollution control options in reducing the toxicity. If specific chemicals are identified as the cause of a water quality standards violation, the POTW's permit may include limitations on these individual pollutants.

3.1.4 Individual Control Strategies for Impaired Waters

Another element of EPA's surface water toxics control program is found in Section 304(l) of the CWA. A portion of Section 304(l) requires states to identify all waters with known water quality impairment due entirely or substantially to point source discharges of the "Section 307(a)" toxic pollutants. Section 304(l) requires states to identify the point sources discharging the toxic pollutants and the amounts of discharged pollutants. For such waters, states must develop individual control strategies for each such point source by February 4, 1989. These **individual control strategies** are designed to ensure that applicable water quality standards are achieved by June 4, 1992. If such controls are established for a POTW, they will be included in the POTW's revised NPDES permit.

The Section 304(l) individual control strategies will address only the 126 priority pollutants. However, the national surface-water toxics-control program requires that any pollutant (conventional, non-conventional, or toxic) that causes toxic effects and violates applicable water quality standards be controlled.

3.1.5 Combined Sewer Overflows (CSOs)

Combined sewers transport domestic sewage, industrial waste, and stormwater to the POTW for treatment. CSOs are flows from a combined sewer in excess of the interceptor or regulator capacity that are discharged to a receiving water without going to a POTW. CSOs can result in the discharge of untreated sewage and industrial waste. EPA issued an interim final national control strategy for CSOs on January 27, 1989. The strategy reaffirms that CSOs are point sources subject to the requirements of the CWA. CSOs are not subject to secondary treatment regulations applicable to POTWs. CSOs discharging without a permit are unlawful and must be eliminated or issued permits that ensure compliance with technology-based and water quality-based requirements of the CWA. POTWs are responsible for planning and implementing system-wide combined sewer management plans. State-wide permitting strategies will be developed by the states or regions to ensure implementation and consistency with the CSO strategy. The goals of the strategy are threefold:

- To ensure that if CSO discharges occur, they occur only as a result of wet weather.
- To minimize water quality, aquatic biota, and human health impacts from overflows that do occur.
- To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable state water quality standards.

3.1.6 NPDES-Required Notifications for Upsets and Bypass

Two types of events specified in NPDES permits that require reporting are upsets and bypass. Upsets result in unintentional, temporary noncompliance with technology-based permit effluent limitations but do not include noncompliance events resulting from events such as operational errors and other factors identified in 40 CFR 122.42 (n). Upsets must be documented, dealt with and reported within 24 hours,

as described in 40 CFR 122.42 (n). Bypass is the intentional diversion of waste streams as discussed in 40 CFR 122.42 (m). Bypass events that do not exceed effluent limitations are allowed only if it is for essential maintenance. Otherwise, bybass events must be reported within 10 days for anticipated bypass (which are subject to approval) and 24 hours for unanticipated bypass events. Bypass events exceeding effluent limitations are prohibited except under limited conditions discussed in 40 CFR 122.42(m).

3.2 Effluent Discharges Under RCRA

Effluent discharges from a POTW, including those POTWs treating hazardous waste mixed with domestic sewage or operating under a RCRA permit-by-rule (see Sections 2.4.2 and 2.4.4), are subject only to NPDES regulations and not to RCRA's other hazardous waste provisions.

3.3 Effluent Discharges Under CERCLA

A POTW must report releases of CERCLA hazardous substances, equal to or in excess of their **reportable quantities (RQs),** or exceeding federally permitted release levels by an RQ or more, to the federal government (and to state and local authorities under SARA Section 304). The POTW may be assessed civil or criminal penalties for failing to report and may be liable for the costs of cleaning up the release and damages resulting from the release. For example, POTWs may be subject to CERCLA reporting and response actions if chemical spills occur at the treatment plant, if sludge disposal contaminates ground water or soil, or if hazardous air emissions are released during treatment operations.

3.3.1 CERCLA RQs and Reporting Requirements

POTWs must immediately report any release of a hazardous substance (to air, surface water, ground water, or soil) that equals or exceeds the RQ for that substance to the **National Response Center [(800) 424-8802, or (202) 267-2675 in Washington, DC]** (40 CFR 302.6), unless the release is federally permitted or otherwise exempt (as described immediately below). Section 5.2 details other reporting requirements. A list of hazardous substances and their RQs appears in 40 CFR 302.4. When a POTW reports a release of an RQ or more of a hazardous substance, the federal government or the state may initiate response actions to protect public health or the environment from any threats.

3.3.2 Reporting Exemption for Federally Permitted Releases

On July 19, 1988, EPA proposed a rule clarifying the federally permitted release exemption from CERCLA release reporting. These federally permitted releases, which include routine NPDES-permitted releases from POTWs, are exempt from liability under CERCLA for response costs and damages incurred due to the releases (53 FR 27268). The proposed rule would require a facility to report a release to the National Response Center only if the release exceeds the federally permitted level by an RQ or more. For example, if a POTW's effluent discharge of cadmium is limited by an NPDES permit to 1.5 pounds per day, then the POTW would be subject to CERCLA's reporting requirements only if the effluent discharge contained 2.5 or more pounds per day of cadmium (because the RQ for cadmium is one pound).

According to the proposed rule, a point source discharge covered by an NPDES permit is exempted from reporting if it meets one of the following conditions:

- The discharge is in compliance with an NPDES permit limit that specifically addresses the hazardous substance in question, either directly or through the use of an indicator pollutant. In the case of the latter, the permit must identify the amount of the specific pollutant allowed at accepted levels of the indicator pollutant.
- The source, nature, and amount of a potential discharge were identified and made part of the public record, and the NPDES permit contains a condition requiring that the treatment system be capable of eliminating or abating a potential discharge.
- The POTW's NPDES permit or permit application identifies a continuous or anticipated intermittent discharge caused by events occurring within the scope of the relevant operating and treatment systems. Included are chronic, process-related discharges resulting from periodic upsets in the manufacturing and treatment systems, such as a discharge created by a system backwash.

3.3.3 Reduced Reporting for Continuous Releases

On April 19, 1988, EPA proposed a rule clarifying the continuous release reporting requirement (53 FR 12868). Section 103(f)(2) of CERCLA provides relief from reporting releases of hazardous substances that are continuous, stable in quantity and rate, and are releases for which notification has been given under Section 103(a) for a period sufficient to establish the continuity, quantity, and regularity of such releases. Section 103(f)(2) provides further that in such cases, notification shall be given annually or at such a time as there are any statistically significant increase in the quantity released of any hazardous substance. For example, if a POTW experiences a reportable release of a hazardous substance that is continuous and stable in quantity and rate, instead of reporting such a release under CERCLA on a per-occurrence basis, the POTW may report only annually and in the event of a statistically significant increase in the release.

3.3.4 Liability Under CERCLA

Anyone responsible for a hazardous substance release that is not federally permitted is liable for the costs of cleaning up the release and for any natural resource damages caused by the release, if deemed necessary and consistent with the National Contingency Plan (40 CFR Part 300). Even if a release is reported as required, the POTW could still be liable for response costs.

Releases include activities such as discharging, spilling, leaking, pumping, pouring, injecting, leaching, or disposing into the environment (40 CFR 302.3).

Even properly managed POTWs may be subject to potential CERCLA liability as a result of sludge disposal at improperly designed or managed off-site land disposal sites. Accordingly, POTWs should select sludge disposal sites carefully to avoid being identified as a potentially responsible party (PRP) at a facility, such as a landfill, that becomes a Superfund site. In this case, the POTW is identified as a party responsible for creating a hazardous waste problem and may be required to pay for all or part of the cleanup costs.

Sewage Sludge Use And Disposal

The need for effective sludge management is continual and growing. The quantity of municipal sludge produced annually has almost doubled since 1972, when the Clean Water Act imposed uniform minimum treatment requirements for municipal wastewater discharges. Municipalities currently generate approximately 7.7 million dry metric tons of sludge each year. This quantity is expected to double by the year 2000 as the population increases and as more municipalities comply with Clean Water Act requirements.

4.1 EPA Policy and Regulations

For many years, sewage sludge was regulated under a number of federal statutes, with no comprehensive program at the national level. Existing federal regulations are authorized under several legislative mandates and have been developed independently in response to media-specific concerns. The primary role for control over sewage sludge use and disposal has fallen to the states, and while nearly all states have some type of sludge program in place, these programs vary widely in comprehensiveness of coverage.

In 1984 EPA adopted its first policy on municipal sludge management. This policy stated that sludge management was a responsibility to be shared by EPA, states, and local governments. The policy established roles and duties for each entity. EPA's primary responsibility is to develop and enforce the national technical standards for sludge management and oversee state programs implementing these standards. The local governments must select sludge management options and maintain sludge quality in accordance with federal requirements.

Sewage sludge is both a waste and a resource. Used properly, it can be recycled as a fertilizer and soil conditioner. However, contaminated sludge or poor disposal practices can pose an environmental threat to air, surface water, ground water, or the food chain. EPA's policies and regulations reflect the two-fold purpose of regulating sewage sludge to ensure that it is handled properly and is of sufficient quality for use as a soil conditioner and fertilizer.

4.2 Sewage Sludge Use and Disposal Under the CWA

Section 405 of the CWA, as amended by the Water Quality Act of 1987, requires EPA to develop technical standards which:

- Identify the major sludge use and disposal methods.
- Identify toxic pollutants that may in certain concentrations interfere with each use and disposal method.
- Establish acceptable levels of the identified pollutants for each use and disposal method to protect public health and the environment.
- Establish management practices, where necessary.

In addition, Section 405 of the CWA requires that the technical standards be implemented through an NPDES permit (or another permit listed in Section 405). Finally, Section 405 also requires that prior to promulgation of the technical standards, EPA must incorporate sludge conditions developed on a case-by-case basis into NPDES permits (or take other appropriate measures) to protect public health and the environment.

POTWs should be aware that pursuant to these CWA requirements (and EPA regulations and policies developed under the CWA), NPDES permits issued or reissued after the effective date of the CWA amendments (February 4, 1987) must contain some sludge conditions, or reference sludge conditions in another permit. Most importantly, the permit must require compliance with existing requirements (see Table 4-1 for current regulations). EPA's recently promulgated Sludge State Program and Permitting final rules for standard permit conditions, and EPA's "Sewage Sludge Strategy" and draft "Guidance for Writing Case-by-Case Permit Requirements for Municipal Sewage Sludge" (June 1988) contain guidance on permit coverage prior to promulgation of the technical standards.

TABLE 4-1

Existing And Pending Sludge Regulations

Coverage	Reference	Application
Existing Regulations		
Polychlorinated Biphenyls (PCBs)	40 CFR 761	All sludges containing more than 50 milligrams of PCBs per kilogram of sludge
Ocean Dumping	40 CFR 220-228	The discharge of sludge from barges or other vessels
New Sources Performance Standards for Sewage Sludge Incinerators	40 CFR 60	Incineration of sludge at rates above 1,000 kilograms per day
Mercury	40 CFR 61	Incineration and heat drying of sludge
Cadmium, PCBs, Pathogenic Organisms	40 CFR 257	Land application of sludge, landfilling and storage in lagoons
Characteristic of EP Toxicity	40 CFR 261 Appendix II	Defines whether sludges are hazardous for some organic and metallic species
Land Disposal Restrictions	40 CFR 268	Restricts hazardous waste applied to land
New (Final, Promulgated) Regulations		
State Sewage Sludge Management Programs and Permit Requirements	40 CFR 501 40 CFR 122-4	Requirements for state sludge management permit programs and permitting requirements
Pending (Proposed) Regulations		
Sludge Technical Standards	40 CFR 503	Technical requirements for sludge use and disposal
Municipal Landfill Regulations	40 CFR 258	Co-disposal of sludges and municipal solid waste
Toxicity Characteristic	40 CFR 261 Appendix II	New test to determine if sludges are hazardous for a number of organic and metallic species

EPA proposed technical standards for use and disposal of sewage sludge on February 6, 1989, to be codified in 40 CFR Part 503 (54 FR 5746). These proposed rules cover five sludge use and disposal methods:

- Incineration.
- Land application (including agricultural and non-agricultural uses).
- Distribution and marketing (e.g., composted sludge products).
- Disposal in a monofill (sludge-only landfill).
- Surface disposal (e.g., long-term storage in piles).

The proposed standards include specific numeric pollutant limits in sludge and management practices for each use and disposal method. Disposal of sludge in a municipal solid waste landfill will be covered under 40 CFR Part 258 (proposed on August 30, 1988 in 53 FR 33314 and expected to be finalized in late 1989).

The CWA set very tight deadlines for compliance with the technical standards; facilities have one year after promulgation to achieve compliance with the technical standards (two years if construction is needed). This deadline applies whether or not the technical standards have been incorporated into a permit.

EPA intends that Part 503 technical standards will be the primary regulatory authority for sewage sludge use and disposal. Thus these regulations will either incorporate or supersede 40 CFR Part 257 requirements for land application and disposal in a monofill, and the Clean Air Act requirements for incineration. The Part 503 regulations will *not* cover:

- Sludges that are found to be hazardous, and therefore regulated under RCRA Subtitle C.
- Ocean disposal of sewage sludge, which is governed by the Marine Protection, Research and Sanctuaries Act (MPRSA) as amended by the Ocean Dumping Ban Act of 1988.

4.3 Sludge Disposal Under RCRA

Any sludge produced by a POTW that is a hazardous waste must be stored, shipped, and disposed of in accordance with the RCRA hazardous waste regulations (see Sections 2.4.3, 2.4.6, and below). Sewage sludge is generally considered a hazardous waste if it exhibits a hazardous waste characteristic (for example, it fails the EP toxicity test and is not further treated), or is derived from the treatment of listed hazardous waste received by the POTW by truck, rail, vessel, or dedicated pipe. Only RCRA-permitted treatment, storage, or disposal facilities can manage hazardous waste for incineration, land application, or landfilling (see Section 2.4).

Under the Agency's **land disposal restrictions** program, EPA has developed (and is continuing to develop) regulations designed to ensure that land disposal of hazardous wastes is protective of human health and the environment (40 CFR Part 268). The regulations require certain hazardous wastes, including POTW-generated hazardous sludges, to meet treatment standards expressed as specified treatment technologies, total pollutant concentrations, or TCLP leachate concentrations prior to being disposed of on land. POTWs that generate or ship wastes covered by the land disposal restrictions (i.e., "restricted wastes") must identify the applicable treatment standards, certify whether the waste meets the standard, and provide this information to the land disposal facility or any other treatment, storage, or disposal facility when delivering the waste. POTWs that dispose of any restricted waste are responsible for ensuring that only wastes meeting the treatment standards are land disposed. These facilities must document that the waste has been treated in accordance with the applicable EPA treatment standards. Most POTWs will not generate sludge that exhibits the hazardous waste toxicity characteristic as currently defined (see Section 2.4.1).

4.4 Sludge Disposal Under CERCLA

If the sludge from a POTW contains any CERCLA hazardous substance and the sludge is released into the environment in an amount equal to or greater than its RQ within a 24-hour period, the POTW is subject to the reporting requirements under Section 103(a) of CERCLA and Section 304 of SARA (50 FR 13462 [April 4, 1985]). For example, if 1,000 pounds of sludge containing 1 pound or more of 1,4-dichloro-2-butene is released to the environment in one day, the release containing this hazardous substance must be reported to the National Response Center and state and local authorities. An exception to these reporting requirements for federally permitted releases and the reduced reporting requirements for continuous releases of hazardous substances were described in Section 3.3.2.

POTWs that previously disposed of sludge in an impoundment or landfill that are designated as Superfund sites needing cleanup may be PRPs who are required to pay for cleanup of the site (see Section 3.3.4).

4.5 Sludge Disposal Under TSCA

POTW sludges contaminated with **polychlorinated biphenyls (PCBs)** containing more than 50 ppm PCBs must be handled in accordance with 40 CFR Part 761, and disposed of in an incinerator (that complies with 40 CFR 761.70), a chemical waste landfill (that complies with 40 CFR 761.75), or an alternative method approved by EPA. Spills of PCB-contaminated sludges (including intentional or unintentional spills, leaks, and other uncontrolled discharges) must be cleaned up to stringent levels in accordance with EPA's PCBs Spill Cleanup Policy (52 FR 10688, Subpart G of 40 CFR Part 761). POTWs that experience PCB spills resulting in the direct contamination of sewage treatment systems must immediately notify EPA and clean up the spill (40 CFR 761.120). POTWs may be excluded from final decontamination standards as determined on a case-by-case basis by EPA.

4.6 Air Pollution Regulations

POTWs that incinerate sludge or operate sludge dryers or utility steam boilers are currently regulated by three EPA programs under the CAA--New Source Review (either Prevention of Significant Deterioration (PSD) or nonattainment area permitting), the New Source Performance Standards (NSPS), and the National Emission Standards for Hazardous Air Pollutants (NESHAPs). POTWs may also be regulated by state standards that are more stringent than the federal requirements. EPA's program for Prevention of Significant Deterioration (PSD) is a system whereby new sources of pollution are subject to special requirements. The requirements are designed to protect and maintain air quality in those areas that meet the National Ambient Air Quality Standards (NAAQS). NAAQS have been set for carbon monoxide, particulate matter, lead, nitrogen dioxide, ozone, and sulfur oxides. For areas meeting the NAAQS (referred to as attainment areas), increments in air pollution are specified that would be considered significant in their impact on public health and welfare. These PSD increments serve as limits on allowable additions to existing air emissions. POTWs that plan to construct an incinerator, boiler, or other air pollution source in the areas meeting the NAAQS must show that they will not create pollution sufficient to violate any of the PSD increments. In addition, these facilities must employ the Best Available Control Technology for controlling the air emissions. EPA's PSD program applies to major stationary sources that have the potential to emit or do emit more than 100 tons per year (or 250 tons per year, depending on the source category) of any pollutant covered under the CAA (40 CFR Part 52). For areas not meeting the NAAQS (nonattainment areas), POTWs may be required to achieve even more stringent emissions levels.

EPA's New Source Performance Standards (NSPS) program regulates emissions from sources that threaten the NAAQS. The NSPS program restricts emissions from new industrial facilities or facilities undergoing major modifications. The NSPS standards are uniform national rules for specific industrial categories, such as utility steam boilers. The NSPS standards for sewage treatment plants currently cover only particulate matter and opacity (40 CFR Part 60). The standards specify that no sewage sludge incinerator can discharge particulate matter at a rate in excess of 0.65 g/kg dry sludge input (1.30 lb/ton dry sludge input), or discharge any gases that exhibit 20 percent opacity or greater. In addition, certain boilers may be subject to NSPS standards for particulate matter, sulfur dioxide, and nitrogen oxides. These standards depend upon the BTU output and type of fuel utilized by the unit. POTWs planning to construct, modify, or expand a sludge incinerator are regulated by EPA's NSPS program.

The National Emission Standards for Hazardous Air Pollutants (NESHAPs) program is applicable to both sludge incinerators and dryers and requires POTWs whose mercury emissions exceed 1,600 g per 24-hour period to test their sludge or emissions for mercury at least once every year. Emissions from any combination of sludge incineration and sludge drying cannot exceed 3,200 g. of mercury per 24-hour period (40 CFR Part 61 Subpart C). Although EPA anticipates that few POTWs will exceed NESHAPs standards, all facilities must demonstrate compliance through testing. POTWs that incinerate beryllium-containing waste may be subject to the beryllium NESHAP, which sets daily emission limits from the incinerator. Only POTWs receiving significant volumes of wastewater from a beryllium processing plant could potentially exceed the limit (see 40 CFR Part 61 Subpart E).

Other Pollution Issues

5.1 RCRA Corrective Action

Any POTW holding a RCRA permit (including POTWs that handle hazardous waste under a permit-by-rule) that releases a hazardous waste to the environment may be required to take several corrective measures. First, the POTW may be required to take immediate action to reduce imminent danger posed by waste at the facility or any waste that has leaked beyond the site. In addition, EPA may require the facility to perform ground-water monitoring to evaluate the extent of the problem. Finally, EPA may require the facility to clean up the contamination and take other steps to protect public health. EPA (or the authorized state) then incorporates these corrective action requirements into the POTW's NPDES permit. For example, if EPA discovers that hazardous waste from a POTW's surface impoundments has leaked into ground water, the Agency could require a POTW to pump and treat pollutants in contaminated ground water and to supply nearby residents with alternative sources of drinking water. These requirements would then be incorporated into the POTW's NPDES permit.

Releases of hazardous constituents to all media are subject to corrective action. EPA's corrective action program applies to all **solid waste** (as defined by RCRA) **management units** (SWMUs), including containers, tanks, waste piles, surface impoundments, and landfills. For example, all wastewater treatment units within a POTW's boundaries are covered by corrective action requirements. EPA has developed guidance to assist POTWs in complying with RCRA's corrective action requirements.

5.2 Emergency Planning and Community Right-To-Know

In 1986, Congress amended CERCLA by enacting the Superfund Amendments and Reauthorization Act (SARA), which included a new provision: Title III--the Emergency Planning and Community Right-to-Know Act. This law requires that detailed information about the nature of hazardous substances in or near communities be made available to the public. Several components of this legislation affect POTWs and the chemicals they use.

Sections 302 and 304 of Title III (40 CFR 355.30 and 355.40) require that POTWs notify their State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) in writing if they have any of 366 extremely hazardous substances (EHS) present at their facilities above "threshold planning quantities" (TPQs), or immediately if any of the chemicals are released in quantities equal to or exceeding their "reportable quantities (RQs)" established under CERCLA, or 1 pound if they are not CERCLA hazardous substances. In addition, Title III requires that these POTWs participate in emergency planning. The 366 EHS and their threshold quantities are listed in 40 CFR Part 355 Appendix A, and include the chemicals listed in Table 5-1 that are frequently used by POTWs.

Moreover, POTWs must immediately report to their SERC and LEPC any release of a CERCLA hazardous substance equal to or in excess of its reportable quantity (40 CFR 355.40), in addition to calling the National Response Center (see Section 3.3.1). Some chemicals commonly found at POTWs, including ferrous chloride, methanol, potassium permanganate, ferric chloride, phosphoric acid, sodium hypochlorite, and calcium hypochlorite, are hazardous substances that should be considered in the NPDES permit. For example, ferrous chloride discharges exceeding 100 pounds daily in the effluent that are federally permitted would not require notification under 40 CFR 355.40. Note that hydrogen peroxide, ozone, and sulfur dioxide are currently proposed for designation as Superfund hazardous substances and must be reported to SERC and LEPCs at the one-pound level.

In addition to emergency notification provisions, Section 311 provides that facilities which are required by the Occupational Safety and Health Administration (OSHA) to prepare or have available Material Safety Data Sheets (MSDSs) for hazardous chemicals must also provide SERCs, LEPCs, and fire departments certain information on these chemicals if they

Table 5-1

Some Of The EHS Chemicals At Or In POTWS That Trigger SARA Reporting

Substance	Threshold Planning Quantity	Title III Reportable Quantity
Ammonia	500 lbs.	100 lbs.
Chlorine*	100 lbs.	10 lbs.
Hydrogen Chloride (anhydrous)	500 lbs.	5,000 lbs.
Hydrogen Peroxide (Concentration >52%)	1000 ibs.	1 lb.
Nitric Acid	1000 lbs.	1000 lbs.
Ozone	100 lbs.	1 lb.
Sulfur Dioxide	500 lbs.	1 lb.
Sulfuric Acid	1000 lbs.	1000 lbs.

*A standard chlorine gas cylinder weighs 150 pounds, so most POTWs must notify under Section 302.

produce, use, or store certain quantities. This information includes copies of the MSDSs or a list of chemicals on which MSDSs are maintained and an annual inventory form indicating amounts used and stored. Many of the chemicals used at POTWs are subject to this requirement if they are stored in quantities greater than 10,000 pounds, including, but not limited to: lime (calcium oxide), polymers, methanol, potassium permanganate, alum, ferric chloride, pickle liquor, phosphoric acid, sodium hypochlorite, calcium hypochlorite, copper sulfate, carbon dioxide, other compressed gases, gasoline, cleaning solvents, and strong acids and bases. In addition, hazardous substances generated and/or stored by POTWs, such as methane and chlorine dioxide, are subject to MSDS requirements. Publicly owned and operated POTWs may not be covered by this requirement if they are not covered by OSHA's Hazard Communication Standard. However, states may enact their own community right-to-know laws paralleling the federal Title III requirements and these statutes may require publicly owned and operated facilities to comply with the MSDS requirements.

5.3 Underground Storage Tanks (USTs)

Most POTWs use underground storage tanks (USTs) to store fuel oils, gasoline, waste oils, or other chemicals. These tanks are now regulated under RCRA. POTWs with USTs containing either petroleum or CERCLA hazardous substances must notify the state or local implementing agency of the number and type of tanks on the premises, and abide by requirements covering, among other things, proper design and installation of tanks, general operating practices, detection and reporting of leaks or spills, and investigation and cleanup of releases. Financial responsibility for taking corrective measures and compensating individuals who are harmed by leaks or spills extends only to those facilities that store petroleum products in USTs. (The September 23, 1988, 53 FR 37082 and October 26, 1988, 53 FR 43322 regulations will be codified in 40 CFR Part 280, available in fall, 1989).

5.4 Oil Pollution Prevention

Many POTWs store fuel oil, machinery lubrication oil, or waste oil (including oil-laden sludges, precipitates, and residues) on site. POTWs are prohibited by EPA regulations, under the Clean Water Act, from discharging oil that causes a film or sheen, discolors the water surface or adjoining shorelines (40 CFR Part 110), or violates any water quality standards. Discharges in compliance with an NPDES permit, however, are exempted from these regulations.

POTWs with the potential to discharge oil (in any form, including petroleum, fuel oil, sludge, oil refuse, or oil mixed with waste) in harmful quantities into navigable waters or adjoining shorelines may be required to prepare a Spill Prevention Control and Countermeasure (SPCC) Plan (40 CFR Part 112). POTWs maintaining an oil storage capacity in excess of 660 gallons in a single above-ground tank, or an aggregate storage capacity of 1,320 gallons in above-ground containers or 42,000 gallons in below-ground containers, must comply by establishing a SPCC Plan. The SPCC Plan must describe the procedures, methods, and equipment that the POTW will use to prevent any spilling, leaking, dumping, or other discharge of oil to navigable waters. Due to the broad range of types of facilities required to develop SPCC

Plans, EPA has no specific plan format requirements; however, the Agency lists a number of facility-specific requirements in 40 CFR Part 112.

In addition, any waste oils contaminated with PCBs at 50 ppm or over must follow the storage and disposal requirements of 40 CFR Part 761.

5.5 National Environmental Policy Act (NEPA)

If a POTW receives federal funding, the facility is required to plan its policies and actions in light of the environmental consequences under the National Environmental Policy Act (NEPA), enacted in 1969. The POTW must prepare an environmental impact statement (EIS) for any major action that will significantly affect the quality of the human environment. Such actions could include expansion of the facility or changing the location of the discharge pipes. The EIS must identify and address the environmental impacts of the proposed action and identify, analyze, and compare options (40 CFR Part 1500).

APPENDIX A

Glossary and Abbreviations

CAA	—	Clean Air Act (1970)
CERCLA	—	Comprehensive Environmental Response, Compensation, and Liability Act (1980) (pronounced "sir kla"), as amended (Superfund)
CFR	—	Code of Federal Regulations
CSO	—	Combined Sewer Overflow
CWA	—	Clean Water Act of 1972, as amended
EP Toxicity	—	Extraction Procedure Toxicity (40 CFR Pt. 261, App. II of RCRA)
EPA	—	U.S. Environmental Protection Agency
FR	—	Federal Register: week-day government publication that contains proposed and final regulations with explanatory preambles; [54 FR 5746 is the 1989 FR starting on page 5746]
GPO	—	Government Printing Office; sells FR subscriptions, daily FR copies as available, and CFRs; (202) 783-3238
Hazardous substances	—	Defined by and regulated by CWA and CERCLA (CERCLA's list contains all of the CWA substances, plus additional substances).
Hazardous waste	—	Defined by and regulated by RCRA
LEPC	—	Local Emergency Planning Committee, as established in SARA Title III, Sections 301 to 303. LEPCs develop local emergency response plans.

MSDSs	—	Material Safety Data Sheets (OSHA)
Monofills	—	Landfills designed to accept only one type of waste
NEPA	—	National Environmental Policy Act
NESHAPS	—	National Emission Standards for Hazardous Air Pollutants (CAA)
NPDES	—	National Pollutant Discharge Elimination System (CWA)
NSPS	—	New Source Performance Standards (CAA)
OSHA	—	Occupational Safety and Health Administration
PCBs	—	Polychlorinated biphenyls (TSCA)
POTW	—	Publicly Owned Treatment Works (CWA)
Priority pollutants	—	Listed in 40 CFR Part 423, Appendix C (CWA)
PRP	—	Potentially Responsible Party (CERCLA)
PSD	—	Prevention of Significant Deterioration (CAA)
RCRA	—	Resource Conservation & Recovery Act, as amended (pronounced ''rick-ra'' or ''wreck-ra'')
RQ	—	Reportable Quantity of hazardous substances (CERCLA)
SARA	—	Superfund Amendments and Reauthorization Act of 1986 (amended CERCLA)
SERC	—	State Emergency Response Commission, as established in SARA Title III, Sections 301 to 303. SERCs establish emergency planning districts, and appoint, supervise, and coordinate LEPCs.
SPCC	—	Spill Prevention Control and Countermeasure
SWMU	—	Solid Waste Management Units (RCRA)
TCLP	—	Toxicity Characteristic Leaching Procedure (RCRA)
Title III	—	Emergency Planning and Community Right to Know Act of 1986 (EPCRA, part of SARA)
TPQ	—	Threshold Planning Quantity (Title III of SARA)
TRE	—	Toxicity Reduction Evaluation (CWA)
TSCA	—	Toxic Substances Control Act (pronounced ''toss-ka'')
TSDF	—	Treatment, Storage, and Disposal Facility (RCRA)
UST	—	Underground Storage Tank (RCRA)
Vessel	—	Object designed for navigation on the water (ships, boats, barges)
WQA	—	Water Quality Act

Sources of Additional Information

Issue/Concern	EPA Contact Name & Organization	Contact Phone Number
CERCLA issues	RCRA/Superfund Hotline	(800) 424-9346 (202) 382-3000
RCRA issues	RCRA/Superfund Hotline	(800) 424-9346 (202) 382-3000
Underground storage tank regulations	RCRA/Superfund Hotline	(800) 424-9346 (202) 382-3000
PCBs	TSCA Hotline	(202) 554-1404
Emergency planning and community right-to-know	Emergency planning and community right-to-know information line	(800) 535-0202 or (202) 479-2449
CFRs, Acts, FR	Not copyrighted or protected; at many libraries or for purchase from the Government Printing Office (GPO)	(202) 783- 3238

Title 40 CFR is updated as of July 1 of each year. The July 1, 1989 versions will be available from GPO in fall 1989. 40 CFR Parts are bound as follows (e.g., 40 CFR 403.5 is in the volume containing 40 CFR Parts 400-424):

1- 51	EPA general, grants, air programs
52	Air programs, cont.
53- 60	Air programs, cont.
61- 80	Air programs, cont.
81- 99	Air programs, cont.
100-149	Water programs (1988 version costs $25)
150-189	Pesticide programs
190-299	Radiation, Noise, RCRA (1988 version costs $24)
300-399	Superfund, Emergency Planning & Community Right to Know (1988 version costs $8.50)
400-424	Effluent guidelines (1988 version costs $21)
425-699	Effluent guidelines, cont., Energy policy (1988 version costs $21)
700-end	TSCA, NEPA

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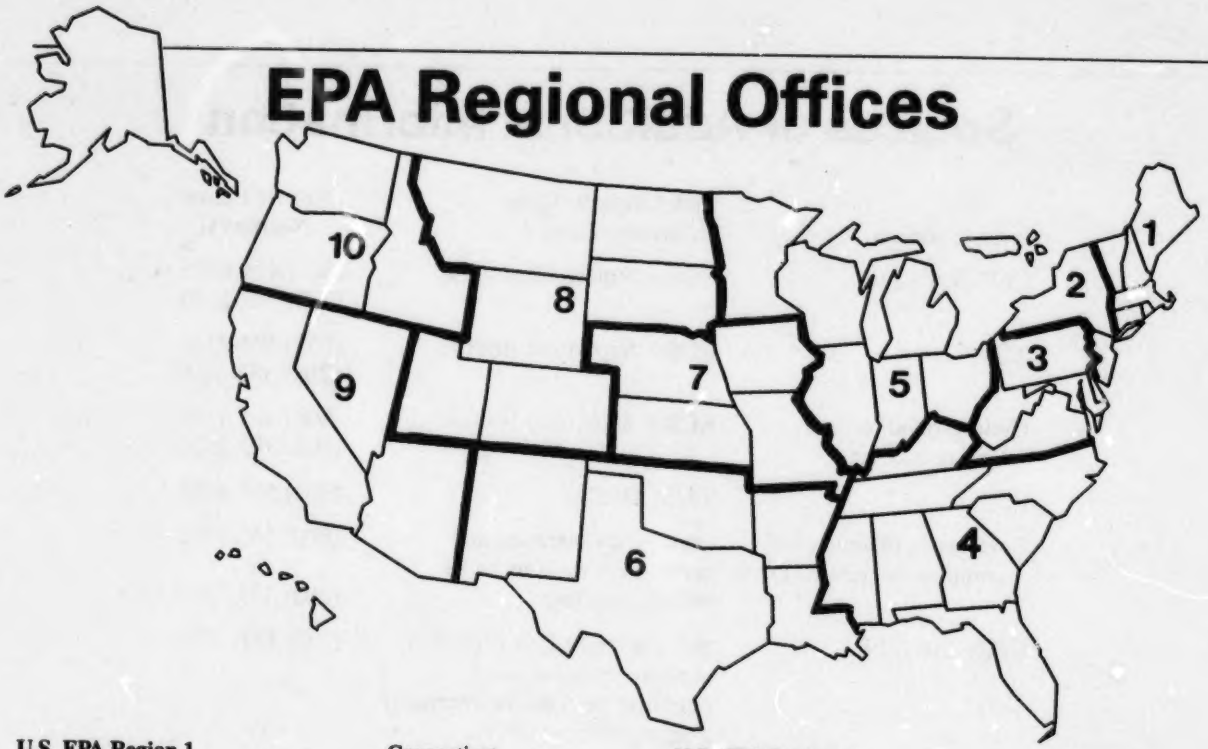

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Dallas, TX 75270
(214) 655-6444

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(913) 236-2800

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One Denver Place — Suite 1300
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Denver, CO 80202-2413
(303) 293-1603

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San Francisco, CA 94105
(415) 974-8071

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1200 Sixth Avenue
Seattle, WA 98101
(206) 442-5810

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NOTE: The telephone numbers listed are general information numbers only; please ask for the program office to obtain specific information on the issues discussed in this booklet.